

### **AMENDMENTS TO THE SPECIFICATION**

[0007] Embodiments of the invention involve liquid crystal cells that are resistant to electromagnetic or ionizing radiation, for example, light with wavelengths between 100 nm and 400 nm, commonly referred to as UV radiation. However, embodiments of the invention may be used with other wavelengths or ionizing radiation that degrade liquid crystal (LC) material. The inventive liquid crystal cells may be used as spatial light modulators (SLM) that replace photomasks in a photolithographic imaging system. One example of a LC cell is a liquid crystal on silicon (LCOS) cell. These types of cells have been used before in other optical technologies such as microdisplays for projection systems; however, prior attempts to utilize light in the UV wavelength range have failed. The materials that are in these cells are typically organic, and thus break down under exposure to UV light. The degradation of prior cells can appear as an increase in the formation of ionic species, or a deposition of residue on the surfaces of the liquid crystal cell. Both of these effects lead to the eventual electrical or optical failure of the cell. Depending on the intensity of the light source, failure can occur in just a few minutes. In contrast, the inventive cells have lifetimes of thousands of hours, thus enabling an LCOS cell device to be used with UV illumination.